

Valvular heart involvement in a patient with rheumatoid arthritis

Rheumatic valve disease

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Infective endocarditis (IE) is a serious cardiac infectious disease with high mortality rates. Rheumatic diseases may be complicated with different cardiac presentations. Herein, we report a Rheumatoid Arthritis patient presented with subacute cardiac valve alterations due to infective endocarditis. In some cases, it may take time to make a clear diagnosis, but it is necessary to be dynamic in this process, especially in different treatment modalities.

Keywords

Rheumatoid arthritis, Infective Endocarditis, Cardiac Involvement, Inflammation, Valve Surgery

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Introduction

Infective endocarditis (IE) is an infectious disease of endocard and heart valves with high mortality and morbidity rates in untreated patients. In some cases, the diagnosis of IE is confused with valvular involvement of rheumatic diseases [1]. Premature accelerated atherosclerosis and pericardial involvement are more commonly seen than valvular system involvement in rheumatoid arthritis (RA) patients [2]. Herein, we report a patient who has undergone aortic valve surgery due to IE, resulting in additional aortic valve involvement of RA. An informed consent form was obtained from the patient.

Case Report

A 58-year-old man was diagnosed with multiple septic emboli after ongoing rituximab therapy for active seropositive rheumatoid arthritis. He had also hypertension and chronic

kidney disease without cardiovascular system involvement. A fistulizing wound formed subacutely on the right ankle and a 3*5 cm abscess in the gluteal region. After his hospitalization under ampicillin sulbactam we performed further investigation, which resulted in negative abscess culture and negative blood culture, negative serology/radiographic findings for serum brucella, celiac markers, negative quantiferon tests and absence of inflammatory bowel diseases. Antiphospholipid antibody panel, anti-nuclear antibody and panel of extractable nuclear antigens were also negative. Transesophageal echocardiography (TEE) was performed due to developed subfebrile fever, diastolic murmur and high acute phase reactants unresponsive to prolonged antibiotic treatment. TEE resulted in degenerated right aortic cusps, moderate-advanced aortic insufficiency and secondary healing of the right coronary cusps due to possible infective endocarditis. A suspected area for vegetation, ruptured chordae or papilla are shown in Figure 1. After a multidisciplinary evaluation, we decided on aortic valve replacement for the following reasons: atypically located multiple and newly developed abscesses, echocardiographic signs of recently developed aortic valve insufficiency and the relatively young age of the patient. Perop right aortic cusp degeneration, 7 mm tissue defect (rupture) in non-coronary cuspid and annular proper nodular structures were detected (Figure 2). Histopathological findings were associated with central necrosis and mixed-type inflammatory cells related to rheumatic heart valve involvement without any microorganism. Parenteral antibiotic therapy of the patient was completed in eight weeks.

Discussion

A diagnostic dilemma is still present in the case. However we think it is likely that this patient developed infective endocarditis due to possible intensive immunosuppressive health conditions. Newly developed multiple septic abscesses and newly developed aortic valve dysfunction mainly support our hypothesis. Although diagnostic TEE findings or positive blood cultures in Duke's can be instructive in such cases, patients can present with heterogeneous clinical conditions [3]. In this case, there were no positive blood cultures and characteristic TEE findings. Rheumatoid factor (RF) may also be positive in IE due to immune activation related to intravascular/cardiac infection. Positive values of RF were initially present in this patient related to RA.

Some patients may have silent cardiac disease. However, the cardiac valvular involvement (nodules, insufficiency, thickening and alterations) was emphasized in addition to pericardial involvement in RA patients. According to some studies, mitral regurgitation is the most common form of valvular disease in RA patients although the aortic disease is well-defined in patients with ankylosing spondylitis [4]. About 30-40% of patients with RA present with valvular diseases in which mitral regurgitation was found in 80% of them. Few trials also found a correlation between cardiac involvement and duration of the inflammatory process in these patients [5]. There are lots of examples of marantic endocarditis in untreated RA patients. Similarly, Giladi H et al, presented a case with buccogingival mucosal abscess and transient ischemic attacks due to mitral valve involvement

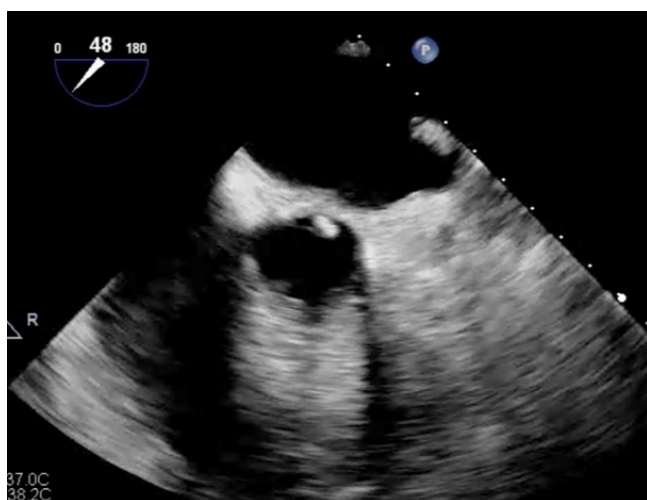


Figure 1. A suspected area of vegetation, ruptured chordae or papilla

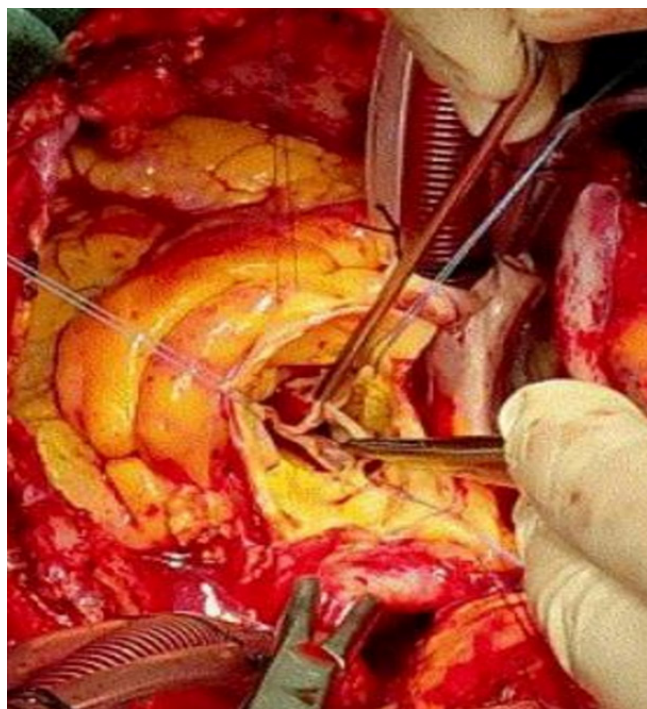


Figure 2. Right aortic cusp degeneration, 7 mm tissue defect (rupture) in non-coronary cuspid and annular proper nodular structures

of rheumatoid nodule and infective endocarditis. The patient improved also after surgery and the 6-week duration of antibiotic therapy [6].

In addition to blood cultures and ecocardiography findings, the histopathologic examination is important in the differential diagnosis. The characteristic histopathologic findings of rheumatoid nodules include central necrosis, surrounded by palisading histiocytes and fibroblasts in addition to mixed type inflammatory infiltrate composed of lymphocytes, plasma cells and histiocytes [7]. In addition, positive valve and/or blood cultures are hard to achieve due to poorly cultivable pathogens. Therefore, valve sequencing rather than valve culture was initially recommended to identify bacteria [8]. Despite all the diagnostic processes, some patients may remain in the gray zone. Echocardiography may be an important screening tool to prevent cardiovascular mortality in RA patients with pericardial and heart valvular involvements.

Conclusion

In some cases, it may take time to make a clear diagnosis, but it is necessary to be dynamic in this process, especially for early antibiotherapies. Heart involvement in RA patients may be underdiagnosed due to asymptomatic patients. Awareness of clinicians on this topic facilitates diagnostic approach, therapeutic options and patient survival.

Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

Conflict of interest

None of the authors received any type of financial support that could be considered potential conflict of interest regarding the manuscript or its submission.

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